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Now that four Nuclear-Powered Cruise Missile Submarines (SSGN) are entering the fleet, new capabilities have emerged never before available from a submerged platform. One of these capabilities has the potential to propel the SSGN from the tactical to the operational level of war. Large scale demonstrations like SILENT HAMMER and GIANT SHADOW have created the advertised capability of embarking a Joint Task Force Commander and staff for short duration high intensity operations. However, at the operational level of war, the complexities of external and internal command, coupled with the operating posture and communication limits of the SSGN, may prohibit the Operational Commander from operating effectively from this platform. This paper will examine significant projects such as the NWC SSGN C2 Study, STIC2 war game, SIMEX 06-4, TRIDENT WARRIOR 07 and the JT&E JC2WTA project, all of which investigated this concept in great detail. The results are varied but all point to one conclusion. Current communications and operating posture limitations of the SSGN will prevent the JTF Commander from operating in the required (expected) capacity to support real world operations.

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MORE THAN A PARADIGM SHIFT… CHALLENGING THE ASSUMPTION THAT A JTF COMMANDER CAN OPERATE EFFECTIVELY FROM AN SSGN

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

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Abstract

Now that four Nuclear-Powered Cruise Missile Submarines (SSGN) are entering the fleet, new capabilities have emerged never before available from a submerged platform. One of these capabilities has the potential to propel the SSGN from the tactical to the operational level of war. Large scale demonstrations like SILENT HAMMER and GIANT SHADOW have created the advertised capability of embarking a Joint Task Force Commander and staff for short duration, high intensity operations. However, at the operational level of war, the complexities of external and internal command, coupled with the operating posture and communication limits of the SSGN, may prohibit the Operational Commander from operating effectively from this platform. This paper will examine significant projects such as the NWC SSGN C2 Study, STIC2 war game, SIMEX 06-4, TRIDENT WARRIOR 07, and the JT&E JC2WTA project, all of which investigated this concept in great detail. The results are varied but all point to one conclusion. Current communications and operating posture limitations of the SSGN will prevent the JTF Commander from operating in the required (expected) capacity to support real world operations.

Introduction

The United States Navy has successfully introduced a new war fighting platform unlike anything else in the world; the Nuclear-Powered Cruise Missile Submarine (SSGN). USS *Ohio* (SSGN 726) and USS *Florida* (SSGN 728) have been delivered to the fleet with USS *Michigan* (SSGN 727) and USS *Georgia* (SSGN 729) wrapping up their post-conversion testing. The SSGN project has been spurred on by large scale demonstrations such as SILENT HAMMER and GIANT SHADOW. These events have created the advertised capability of embarking a Joint Task Force (JTF) Commander and staff. At the operational level of war, however, the complexities of external and internal command, coupled with the operating posture and communication limits of the SSGN, prohibit the operational commander from operating effectively from this platform. This paper will examine several of the most significant studies and exercises that investigated this concept, concluding that embarked command at the Group or Element level is feasible while proving that embarked command at the Force level is not.

Throughout the conversion process, the submarine force has been investigating this entirely new capability for the Submarine Force; the ability to clandestinely position a JTF or Joint Special Operations Task Force (JSOTF) Commander and a streamlined staff in contested littorals for short-duration, high-intensity operations. In this capacity, the SSGN serves as host to a flag officer/general officer (FOGO) operational commander for short embarked periods. For the first time in history, the nuclear submarine is intended to operate at the operational level of war as a command and control (C2) platform. In today's information dependent military, it is nearly impossible for the JTF/JSOTF to operate in isolation, so it is envisioned that the embarked staff (referred to as the forward element) will

have joint groups assigned in supporting roles including Special Operations Forces (SOF), air assets, Quick Reaction Forces, light brigade, and a JTF rear staff.[1]

This new mission set has been investigated using numerous war games, simulation exercises, and at-sea exercises with seemingly positive results; but the posturing and communication limitations of a submerged submarine may be unacceptable for the JTF Commander in real-world operations. Since the USS *Georgia* (SSBN-729) completed the demonstration exercise SILENT HAMMER in October of 2004, the entering assumption for follow on research has been that the JTF/JSOTF, operating at the operational level, will embark as planned. As this capability was exercised and new Tactics, Techniques, and Procedures (TTP) were developed, many operators and analysts, especially those outside of the submarine force, have been squeamish when addressing the submarine communication and operating limitations. To date, no real-world operations have been completed and although non-submarine force players are willing to experiment, it remains to be seen if they will be willing to operate outside of exercises and simulations.

Background

Formerly part of the United States strategic nuclear arsenal, the SSGN idea began in 1994 when the Clinton Administration's Nuclear Posture Review concluded that only 14 of the 18 Ohio Class Trident Ballistic Missile Submarines (SSBN) were required to satisfy current and future nuclear deterrence missions.[2] The first four platforms of the Ohio class were relatively young ships. USS *Ohio* (SSBN 726) was commissioned in November of 1981, and with only 13 years of commissioned service, it seemed like a horrible waste of the

taxpayer's money to scrap the meticulously maintained flagship of the strategic fleet and her three sisters. The question was what to do with them.

At this same time, the value and need for increased levels of conventional land-attack firepower in the littoral was being investigated and the concept of the Arsenal Ship was being championed by the former Chief of Naval Operations, Admiral Michael Boorda.[3] An arsenal Ship would provide a lean platform capable of delivering hundreds of precision-guided land attack cruise missiles without the operational baggage of air defense or reconnaissance.[4] In January of 1997, three competing teams were awarded design contracts to lay out a six ship class of Arsenal Ships.[5] But mere months into the project, it became apparent the program was in trouble. It soon was scaled back to a single-vessel prototype and was then all but terminated, following a skeptical reception from congressional budget panels.[6]

With resources constrained and the daunting cost of the Arsenal Ship leaving a bad taste in the collective mouth of Congress, the SSGN project was accelerated onto center stage as a cost effective alternative. One SSGN would be able to harbor the largest single arsenal of cruise missiles (up to 154) ever put on a US Navy vessel with many ancillary benefits such as stealth, clandestine special forces delivery, persistence, and on-the-scene Command and Control (C2) capability in contested littorals…something a surface combatant could not safely provide.[7] After the requisite congressional fiscal machinations, the project was approved and USS *Ohio* entered the conversion process in 2002.

That same year, shortly before USS *Ohio* began its conversion, the Joint Requirements Oversight Council (JROC) validated and approved a Deployable Joint Command Center (DJC2) Mission Need Statement (MNS).[8] The MNS outlines "operational war fighting needs for a responsive and deployable joint command and control system to

fully command and control joint force operations and JTF operations."[9] The MNS goes on to state that the "lack of a rapidly deployable joint C2 system significantly limits the Joint Force Commanders' (JFC) ability to quickly respond to contingencies and establish necessary command and control of assigned forces anywhere in their area of operations or responsibility."[10] Failure to provide a rapidly deployable Joint C2 infrastructure increases operational risk to the war fighter since it jeopardizes the JFC's ability to exercise seamless C2 between and across all phases of an operational contingency.[11] DJC2 was designed to address these shortfalls.

The Navy, in response to this MNS, began developing a Navy version of DJC2. The primary difference was the incorporation of the core collaborative capability called the Global Command and Control System – Maritime (GCCS-M) as opposed to the Joint version (GCCS-J). GCCS-M, or a collaborative tool similar to it, is required to provide the situational awareness of even the smallest Joint footprint embarked on an afloat platform. Further refinements of the DJC2 concept resulted in a version known as the Small Combatant Joint Command Center (SCJC2). This "lean" forward element could be stood up nearly anywhere from the Littoral Combat Ship, a small HMMWV convoy, camouflaged tents in Afghanistan, and even on board the SSGN.

All four of the SSGNs are equipped with a large space, just aft of the control room, known as the Battle Management Center (BMC). This space was formerly the SSBN Navigation Center built to house the complex equipment required to accurately position the SSBN and its TRIDENT missiles for successful strategic target prosecution. Roughly the footprint of a half basketball court, the area was deemed the perfect location to park the JTF Commander and associated staff with all of the equipment necessary to function as an SCJC2

in the littorals. To support this, funding was secured to make USS *Ohio's* BMC an SCJC2 compliant space. Funding was not allocated to build this specific compatibility into the next three SSGNs. Fiscal constraints were such that funding would not be secured until the concept was "proven" on USS *Ohio*.

Discussion of Analytical Events

SILENT HAMMER

In October of 2004, the submarine force conducted SILENT HAMMER off the coast of San Diego.[12] USS *Georgia*, still configured as an SSBN, served as the host platform to evaluate the capability improvements offered by a clandestine sea base of networked undersea, surface, air, and ground forces in a coordinated operation.[13] These specific capabilities were being heavily advertised as future SSGN capabilities and SILENT HAMMER was the venue to demonstrate these to the rest of the armed forces. This event was arguably the most joint venture the submarine force had embarked on to date.

The event was extremely successful and inspired many spiral development efforts for future SSGN technologies. For the purpose of this discussion, the most significant spiral effort was the development of the BMC which was used as the C2 center for the exercise. The follow on Military Utility Assessment (MUA) documented the need to develop a Small Combatant Joint Command and Control capability for use in maritime-based command centers.[14] The senior officer embarked made it very clear that this future capability MUST be developed, but he acknowledged that significant additional work would be required in distributed command and control.[15] With this guidance, two major efforts evolved: 1. The Joint test and Evaluation (JT&E) project chartered as the Joint Command and Control for

War on Terror Activities (JC2WTA) and 2. A series of Commander Submarine Force (COMSUBFOR) sponsored studies, war games, and simulation exercises.

Both of these multi-year efforts worked under one key assumption. For all missions discussed, it was assumed, and not up for debate, that a FOGO would embark and operate as the operational commander for the mission from the SSGN BMC. At nearly every associated event, individuals would briefly discuss the validity of this assumption, but the arguments were short lived due to the nature of the exercises. The strong demand signal from the SILENT HAMMER MUA persisted.

NWC SSGN C2 Study and STIC2

As one response to the SILENT HAMMER MUA, COMSUBFOR requested that the Naval War College (NWC) embark on a study with the objective to "assess the value of embarking forward deployed Joint Commanders in SSGNs and to develop alternatives to support Joint Operating Concepts and specific Joint Capability Areas within the context of Defense Planning Scenarios."[16] In response, the April, 2006 SSGN C2 Seminar and the August 2006 follow-on event, titled the SCJC2 Tactical Implementation for Command and Control (STIC2) War Game, were developed and conducted.

It was deemed "feasible" that Joint Commanders could (would) embark and that these commanders could exercise "credible" command and control in "lesser contingency operations and limited campaigns".[17] The tone of these findings made it subtly clear that there were limitations involved; perhaps more so than were evident in the execution of SILENT HAMMER. The structure of the embarked forward element was somewhat unclear. Many questions remained and a call for additional assessment and experimentation was cited.

Questions on distributed staff operating procedures, implementing a battle management suite, and developing operations profiles for joint command missions remained.[18] The parallel JC2WTA effort was also wrestling with these same questions.

A significant finding, not directly called out in SILENT HAMMER, was the need for the embarked Joint task element to reach back to a main staff for expanded planning and support requirements. During the C2 Seminar and especially during STIC2, the forward staff found themselves needing amplifying intelligence to make command decisions. Used to a readily available, nearly unlimited, amount of information, the forward staff was somewhat frustrated with the limited amount of resident information in the BMC and the complex and constrained procedures for drawing the information from off hull. During the war game, communications outages were often imposed to simulate situations where the submarine's operating posture impacted communications links. A submarine operating in contested littorals is constantly maneuvering to avoid close proximity with other vessels and possible counter detection. Often, this maneuvering requires the submarine to "go deep" to maintain its stealth.

For the purpose of the STIC2 war game, the simulated SSGN was assumed to be equipped with an updated Floating Wire Antenna that has the ability to maintain low data rate IP communications while the submarine is operating below periscope depth. This technology is an Increment Zero capability in a spiral development program called Communications at Speed and Depth (CSD) and is currently being implemented in the submarine fleet. Because of the low data rates associated with this capability, only simple internet chat was maintained when not at periscope depth. This "communication pipe" is not only more constrained than periscope depth links, but also far more constrained than the

pipes associated with a typical Joint staff operating ashore or on a surfaced combatant. The war game summarized the lingering concern that a "loss of communications incident to the SSGN "going deep" or attempting to avoid detection will adversely impact command operations by disrupting voice communications and limiting IP based communications with assigned and supporting forces."[19] This finding implies that today's communication technologies are insufficient to provide the expected communications links to exchange information at the operational level from the SSGN.

SIMEX 06-4

As a follow on to STIC2, in September, 2006, COMSUBFOR sponsored an SSGN-Specific Command and Control Simulation Experiment (SIMEX) examining the SCJC2 in operation, hosted by MITRE. The objective of the SIMEX was to further examine the SCJC2 concept on an SSGN but with more focus on the SSGN's role in operational fires. The exercise involved a distributed C4ISR process using sensor and weapons simulations with actual C4I systems and operators in the loop. The scenarios specifically addressed Time Sensitive Targeting (TST), Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), and how these concepts interrelate to the operational fires process within the construct of the SCJC2 concept.[20] Specifically, analysis was made on mission planning and execution, and the relationships between a forward deployed SSGN, another surface combatant, ground based Special Operations Forces (SOF) units, and a JTF rear node during maritime, littoral, and deep strike targeting.[21] The issue of whether or not the JTF Commander would embark once again came up and much time was spent in justifying this assumption.

One key advantage of, and strong counter-argument for, operating forward is situational awareness. The JSOTF Commander had much greater tactical-level situational awareness of the joint operations being executed from the SSGN. A senior player stated that the fog of war is much less on the SSGN.[22] The operational commanders of the various scenarios all acknowledged that 'you are giving up some things, but the compelling reason is provided by what you see up forward, which makes a difference.'[23] "What you see" refers not only to the tactical situational awareness but also the personal situational awareness. SOF personnel engage in missions that, by their very nature, are much better suited for face-to-face orders. The SOF that played in SIMEX 06-4, were far more comfortable when they got the sensitive tasking directly. Prior to going ashore, SOF forces wanted to hear directly from the commander see the "whites of his eyes", when being ordered to carry out national tasking . Great value for the SSGN SCJC2 was also seen in situations where the operational commander's presence would increase "speed of command" (i.e. decrease latency).[24] This is an important factor when prosecuting time sensitive targeting. This concept also brings the need for on-scene authority to execute operational fires. This point was especially important in scenarios "where the SSGN is the only 'shooter' in the area".[25]

It is important to emphasize that the operational commander felt the need for speed of command and on-scene authority overrode the fear of losing communications while embarked. As an operational compromise, the SIMEX concluded that the Operational Commander would probably not move forward during the planning phase but would position himself onboard during the time sensitive phase for 48-72 hours.[26] A short duration mission concept also solved the problem of information reach back. With the bulk of the intelligence

analysis completed, there would be less need to suffer through high data flow communications constraints (i.e. imagery and detailed intelligence products).

TRIDENT WARRIOR 07

It is well known that submarines are the most communication-handicapped platforms in the entire military. The simple physics of interactions between the electromagnetic spectrum and water make this problem nearly insurmountable. As the above-water environment has exponentially increased its capability to pass vast amounts of information very quickly, the submarine force was left to exist in a world of data brevity and truncation. The ability to access SIPRNET during periods at communications depth has been only recently afforded to all submarines. Beginning in 2005 and continuing through the current fiscal year, a program known as Communications at Speed and Depth has been championed by the submarine force as the number one future capability priority. This program seeks to introduce a Family of Systems that, together, addresses the needed ability to function as a viable node in the Global Information Grid (GIG) while operating at any depth and speed. While not intended to be the ultimate solution in future years, the program is currently made up of mostly Commercial-Off-The-Shelf (COTS) adaptations which seek to bridge the gap.

"Part of being interoperable is the capability to communicate". Vice Admiral Charles Munns, Commander, U.S. Submarine Forces, commented during a recent SUBTECH (Submarine Technology) briefing.[27] "You know the challenges we face. I know there is plenty of good work going on to make communications at speed and depth a reality. So much work, I fear we may spread our efforts too thinly in an effort to chase too many technologies... Still, all of these efforts must result in a significant reduction in the time

latency of establishing and conducting reliable, two-way communications at data rates sufficient for the problem at hand."[28]

In this case, the problem at hand is simply satiating the ravenous data appetite of a Joint staff addicted to internet technology. The time latency Vice Admiral Munns is referring to is an entirely separate issue and one that the Operational Commander may not have dealt with before. There are two types of latency that a submarine must deal with: 1. communication establishment latency, and 2. satellite throughput latency.

Communications establishment latency is merely a function of the submarines operating posture and current communication technology limitations. A submarine below periscope or "communications" depth must undergo a regimented and time consuming process to safely proceed shallow enough to establish medium data rate (MDR) or faster IP communication links using masts. From the JTF Commander's request for connection to "ready to surf" can take as little as 30 minutes, in a benign maritime environment, and up to an hour and a half or more in what a submarine Commanding Officer would refer to as a "high contact density environment". This necessary delay in communications is a cornerstone of submarine ship safety but will almost certainly frustrate the JTF Commander whose staff is used to relatively immediate data flow when needed.

Satellite throughput latency, while understood in technical circles, was not an anticipated issue prior to the landmark experimentation done in 2007. During TRIDENT WARRIOR 2007, COMSUBFOR N82 working with Naval Undersea Warfare Center (NUWC), Newport, embarked on a Limited Objective Experiment (LOE) to exercise traditional joint staff software suites in a simulated satellite dependent environment. Collaboration tools were chosen based on their widespread use in current joint staffs and the

endorsement of Joint Forces Command (JFCOM). An SSGN BMC SCJC2 Lab Mockup was linked, via SIPRNET and satellite simulation hardware and software, with the *Harry S. Truman* Battle Group and JFCOM making the lab "appear" as an underway submarine for the exercise. Much data was collected but the most disturbing find was how sensitive the collaboration software was to time delays (latency) imposed on the data throughput.

EHF/SHF satellites operate differently than the legacy UHF satellites. Many Navy sailors refer to the UHF satellites as "bent pipes" meaning that they simply relay the Radio frequency signal from ship to shore. If the UHF satellite is a bent pipe, then the EHF/SHF satellite is more like a sewage treatment plant. The incoming signal from a platform afloat is "processed" on board the satellite before being transmitted to shore. This is true in the reverse also. This processing creates a delay, or hiccup, in the data stream that, although small (around 200ms on average), can result in a loss of the "IP Handshake" causing servers to time out and the connection to be lost. Restoration time varies from several minutes to tens of minutes depending on how attentive either end of the connection is at the time. Robust, ship and shore installed, EHF/SHF systems are specifically built with this in mind, and it is almost never an issue. Conversely, COTS programs are not necessarily designed to be used in a time latent environment as was the case in the LOE.

This experiment was the first of its kind and illustrated new obstacles to overcome. Moving the operational commander forward to the SSGN would be far more complicated than just putting people and laptops in the BMC.

JT&E JC2WTA

The Joint Test and Evaluation (JT&E) concept is a broad scoped program that "brings two or more military services or other components together to assess service system operability, evaluate joint concepts and recommend improvements, validate testing methodologies, and improve joint tactics, techniques and procedures."[29] The Joint Command and Control for War on Terror Activities (JC2WTA) project was chartered in February 2006 after a feasibility study determined that a JT&E was needed to "improve the capability to perform distributed Joint Task Force/Joint Special Operations Task Force (JTF/JSOTF) operations from clandestine, forward-based command centers to support low-visibility operations in politically sensitive environments and denied areas."[30] Operating in parallel with, and leveraging off of, the efforts described above, the multi-year project culminated with a published set of TTPs. This publication, titled the "Planners Handbook for SOF/SSGN Integration", is the culmination of many events including Joint Warfare Advisory Groups (JWAG), war games, and at sea testing.

Throughout the effort, the tone of the project changed slightly. Of note, the SCJC2 terminology is not used in the final product. An SCJC2 is envisioned to support any type of Operational Commander necessary as dictated by the mission. The Planner's Handbook is focused entirely on the SOF Group or Element Commander and operations under his prevue. The BMC is described as having a Joint Operations Center (JOC) capability designed to support extended SOF operations, mission planning, and mission execution.[31]

The handbook addresses the issue of communications limitations in depth with options presented to mitigate their negative effects. During the JWAG sessions, a key position was developed within the embarked staff known as the Joint Information Manager

(JIM) who is responsible for "developing information management procedures based on host platform and/or location capabilities, limitations, operational parameters, and the commander's critical information requirements (CCIRs) in order to effectively control the information flow."[32] Existing Joint staff architecture is already equipped with experts in communications links and other experts that track the data battle rhythm and CCIRs. The JIM is an amalgam of these positions with the requirement to also understand the unique challenges of submarine communications. This complex set of tasks and responsibilities is referred to as the "Digital Rules of Engagement" (DROE) within the handbook.[33]

The handbook explains that DROE are guidelines that "directly affect the flow and prioritization of information to and from a platform/location."[34] The DROE must "effectively support the commander's intent, accounting for factors that may include battle rhythm, system configuration, bandwidth availability, and the tactical situation."[35] It is here that the JIM will find the most difficulty. Developing an information battle rhythm around the submarines operating posture will be problematic at best. The tactical and rapidly changing nature of a submarines position both horizontally (maneuvering) and vertically (having to go deep and sever communications links) will undoubtedly strain the JIM's ability to carry out the battle rhythm and respond to the CCIRs. Radio system configuration will be changing as necessary based on off-hull assets, masts and antennas available, and communication requirements external to the JOC (referred to as ship's housekeeping).

The JIM arguably has the most difficult position on the embarked staff. This, combined with the fact that such singular expertise is not inherent in a joint staff normally, make this a high risk element to the mission at hand. Complex management of bandwidth usage, file sizes, information requests, etc. is a daunting problem. The Planner's Handbook

will GREATLY assist the Joint staff in preparing for an embarked mission but only provide a meager amount of communications risk mitigation. The question is, is it enough?

Analytical Conclusions

Looking at both of these parallel efforts, a common thread emerges and the primary difference between SSGN and other C2 locations becomes apparent. The SSGN, limited by current operational doctrine and communication technology will be unable to maintain sustained connectivity to provide the necessary uninterrupted Flag level oversight of high profile, complex operational level mission management.

The SSGN C2 studies imply this constraint with the concept of "credible" C2.[36] The C2 afforded the Operational Commander during the C2 study and STIC2 was "good enough" for the scenarios exercised. These scenarios, however, were somewhat simple and very SOF focused. Additionally, the missions were executed at the O-5/O-6 level. In hindsight, the JTF staff was really a lean JSOTF staff. No real need for FOGO level embarked command was demonstrated. The JSOTF was content to lead by chat and because of the limited focus of the mission, communication outages did not break down the C2 as they might for a broader scoped mission. The JSOTF was also free of any external command functions that are inherent at the three and four star level.

The SIMEX covered a significantly different SSGN capability. The scenarios executed in SIMEX were largely focused on employing operational fires. The corresponding SOF missions were largely used as the catalyst to create "calls for fire" and did not present a large C2 strain on the exercise staff. The need for FOGO level embarkation was limited and mostly revolved around Rules of Engagement concerns. The conclusion that the JTF

Commander would embark for only 48-72 hours was evidence that the JTF Commander does not want to risk being "out of touch" for more than that period of time even though he expressed the interest in being "at the fight" for situational awareness.[37]

The intermittent communications likelihood on SSGN proved to be a catch-22 in the SIMEX providing a solid counter-argument. An early scenario had the JSOTF Commander located at a Rear Node. When the SSGN suffered a communications outage, the JSOTF Commander lost C2 of the mission temporarily. In a follow on scenario, in which he was embarked, the JSOTF Commander expressed relief that he would "always be able to engage the forward staff directly", regardless of communications posture.[38] Despite this, it would seem that if he was told that he could not embark, the mission execution would not have been hindered in the slightest.

Recognizing the limitations of the size and complexity of which C2 structure would embark, it makes sense that the JC2WTA project charter and product was scaled down from a generic JTF Staff to a lean JSOTF. The Planner's Handbook does not retain the SCJC2 lexicon nor does it anywhere imply that a FOGO should embark for anything more than a pep talk. A significant portion of the handbook is dedicated to describing the communications complexities and challenges of the SSGN. Even more effort is given to the risk mitigation of these complexities complete with a new staff position. The Planner's Handbook for SOF/SSGN Integration provides a high level of risk mitigation, without question. Unfortunately, missions that require a FOGO to be on scene will not accept such communications risk.

Needs versus Capability and the future of SSGN

The need for rapidly deployable, comprehensive C2 in the littorals is un-questionable. The creation of the Standing Joint Force Headquarters (SJFHQ) concept reinforces the requirement of a place for them to physically exist while completing the mission. In many areas of the world, the SSGN is the ONLY location that can provide the stealth, persistence, and survivability for mission success. Unfortunately, the capability to accommodate complex staff operations in a submarine has not matured. Today's joint force must continually assess and adjust operations to ensure military objectives are met.[39] At the operational level, the JTF Commander must ensure he is "doing the right things" and not just "doing things right."[40] Achieving this level of assessment is a continuous dynamic cycle needing a constant full duplex information flow and both internal and external situational awareness. There is a clear mismatch in submarine operating posture and communications technologies when compared to the expectations of today's operational level staffs.

Submarine operating posture would require more than a paradigm shift to effectively emulate a shore or surface based JTF. It is likely this will never happen due to the tenets of submarine ship safety and prevention of counter detection. In time, technology will catch up, and the very fact that a submarine has to continuously maneuver might be transparent to an embarked staff. Aggressive projects like Optical Blue-Green Laser Communications (OLC) technology (a possible solution to Communications at Speed and Depth) have the potential to bridge the communications gap such that the extensive risk mitigation and the JIM are no longer required. Unfortunately, we are not there yet and may not be for some time due to the enormous cost of such a program.

Today the SSGN is ready to support many specific missions that involve expertise not resident to the ship's company. For this, the BMC JOC is the perfect location for this expertise to operate in support of short duration missions. However, these missions are largely tactical in nature and will likely not need embarked FOGO C2.

It is my assessment that the JOC envisioned for SSGN is a better host cell for a forward tactical command center established to support a Joint Task Group or Element at the O-5/O-6 level. Simply put, current communications and operating posture limitations of the SSGN will prevent the JTF Commander from operating in the required (expected) capacity to support real world operations.

Notes

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